FINAL SCOPE OF WORK

GSA SCHEDULE 899 CONTRACT NO. GS-10F-0445N
COASTAL ENVIRONMENTS, INC.

ANALYSIS AND REPORT PRODUCTION, SITE 41VT98
CHANNEL TO VICTORIA, VICTORIA COUNTY, TEXAS

I. INTRODUCTION. Coastal Environments, Inc. (CEI-Contractor) shall furnish all personnel, equipment, materials and supplies necessary to complete analysis and reporting of materials recovered from 41VT98 (the Buckeye Knoll Site) under Contract DACW64-97-D-0003, Delivery Order 0006 in accordance with *The Treatment Plan for Archaeological Findings at the Buckeye Knoll Site, 41VT98, Victoria County, Texas* . A copy of this plan, hereafter called the Treatment Plan, is attached. Work to be performed consists of: 1) analyses of artifacts and ecofacts recovered from non-mortuary and mortuary contexts; 2) bioarchaeological analyses of human osteological materials; 3) preparation of a detailed technical report on mortuary and non-mortuary findings; 4) preparation of a non-technical, summary report on the site for the general public; and 5) preparation of non-mortuary materials for accessioning.

II. STATEMENT OF WORK

A. KEY RESEARCH ISSUES. The rationales and justifications for the types and scales of analyses to be performed have been presented in some detail in the Treatment Plan. Immediately below is a summary of the objects of analyses based on the basic research questions presented in the Treatment Plan:

1. Prehistoric cultural chronology of the lower Guadalupe River Basin.
2. Diachronic patterns of human adaptation/ecology on the central coastal prairie of Texas.
3. Possible variable intensity of site occupation through time.

4. Horizontal intrasite patterning.

5. Prehistoric patterns of mobility, exchange and interaction.

6. The demographic dimension of prehistoric adaptation.

7. Coastal vs. inland adaptations.

8. Social and ideological patterns.

9. Are the mortuary materials related to present tribes?

10. What are the chronological parameters of the Early Archaic cemetery?

11. How close is biological relationship between the Early Archaic population at Buckeye Knoll and other populations of similar antiquity in North America?

12. Were the Early Archaic people at the site ancestral to later inhabitants of the region?

13. Were social roles/statuses achieved or were they linked by heredity to lineage memberships?

B. ANALYSES OF ARTIFACTS AND ECOFACTS RECOVERED FROM NON-MORTUARY AND MORTUARY CONTEXTS.

1. Non-mortuary component identification and dating. The Contractor shall identify site components and select samples of organic materials associated with each of the identified components for analysis. Components shall be identified by establishing patterns of relative horizontal and vertical densities, and stratigraphic positions of cultural debris and associated time-diagnostic artifacts. Since charcoal is notably scarce, radiocarbon dates shall be obtained on samples of faunal bone and/or shell from each component. The precise number of dates required for sound interpretations will depend mainly upon the number of components identified; judging by presently known stratigraphic and horizontal complexity of the site, up to 30 samples may be assayed. It is expected that standard radiometric dating will be adequate, given that the profuse quantities of faunal bone and estuarine shell available permit use of samples of adequate volume/weight. However, limited use may be made of the AMS technique if appropriate in specific instances. The relative densities of debris during various times periods (components) shall be interpreted to reflect variable intensity of occupation over time.

2. Analyses of non-mortuary lithic, bone, shell and ceramic artifacts. The Contractor shall utilize standard techniques of artifact description (typological and otherwise, including metrics) to characterize, to the fullest extent possible, the material culture assemblages associated with components at the site. Such characterizations shall be based on typology, form, style, materials and functions of tools and non-mundane/ornamental items. Where appropriate, provenience and metric data shall be presented in tabular form. Lithic artifact analyses shall include typological identifications, identifications and quantifications of tool types, functional studies via use-wear and residue analyses, and studies of debitage types and materials to track patterns of lithic technological organization. Ceramics shall be characterized in detail according to typology and technological and stylistic attributes. Shell and bone tools shall be described in metric, functional and stylistic terms.

3. Analysis of mortuary artifacts. The unique and varied mortuary artifact assemblage shall be studied and documented in detail. This work shall include metric recordation (size and weight data) of all items associated with the burials. Use-wear and residue analyses shall be performed on selected artifacts in order to elucidate functions. All materials shall be identified by comparative analyses, including consultation with recognized experts in lithic materials identifications. Lithic tools and a sampling of debitage shall be placed under ultra-violet light to determine if raw materials originated in the Edwards Plateau area of central Texas. The kinds of associations of various identifiable artifact classes shall be used to infer function-specific associations with age-sex categories of interred individuals.

4. Faunal analysis. Faunal analysis shall include substantial zooarchaeological sampling of all identified components in order to characterize faunal-bone assemblages according to taxa to the level of general and, where possible, species. This data shall be combined with floral data in the reconstruction of diet, and economic and ecological patterns during specific time periods and as they change through time. Species identification and seasonality shall be performed for shellfish remains and fish otoliths.

5. Macrobotanical analysis. The light and heavy fractions from 64 flotation samples of soil from culturally relevant contexts shall be examined for removal and taxonomic identification of possible preserved/carbonized plant materials.

6. Palynology. A detailed palynological record of climatic and environmental change, obtained from off-site geobotanical cores, has been prepared under separate contract. This record spans approximately 9,000 years from the early Holocene to modern times. These findings shall be integrated with other data into an overview of human-ecological continuities and changes at the site.

7. Geomorphology/geoarchaeology. A multi-task geoarchaeological study, prepared under separate contract, has identified probable mechanisms for site formation and placed various strata within a chronological framework using a series of optically stimulated luminescence (OSL) dates on the sand fraction. These findings shall be integrated into other paleoenvironmental and archaeo-stratigraphic data to obtain a holistic interpretation of the physical and cultural history of 41VT98.

8. Artifact density mapping. The Contractor shall analyze the variability in densities of various cultural debris classes by unit-level proveniences to test for identifiable horizontal patterning within site components. Such patterning, particularly as it may relate to hearth or pit features, may be used to model on-site human behavior.

9. Cast Replications. Accurate expoxy-resin-cast replications shall be made of all lithic artifacts from mortuary contexts. Multiple copies shall be made of especially interesting or important specimens to facilitate museum display. Bone and antler and shell artifacts shall be replicated where possible in view of the fragility of certain specimens. In order to ensure a permanent record of these artifacts, at least one example of each replicated specimen shall be prepared for accessioning.

10. Artifact Photographs. A high-quality photographic record shall be made of all mortuary artifacts. These photographs will be prepared for accessioning as a permanent record of the mortuary assemblage from the site.

11. Drawings of mortuary artifacts. High-quality technical drawings shall be prepared of the mortuary artifacts for the purposes of technical reporting and broader information dissemination (e.g., a non-technical publication on the site),. Where appropriate for presentation of significant information, drawings shall include obverse-face and cross-sectional views. Drawings shall be rendered in a combination of mediums such as ink, pencil and silver-pencil together with computerized enhancement in order to achieve maximum accuracy and detail of shading and texture.

C. BIOARCHAEOLOGICAL ANALYSES OF HUMAN OSTEOLOGICAL MATERIALS

1. Non-destructive analyses. Non-destructive bioarchaeological analyses and recordation (metric, photographic) of the human remains from 41VT98 shall be conducted in a separate, secure laboratory at Florida State University (FSU) under Dr. Doran's direction. These analyses will be in accordance with the procedures and techniques discussed in the Treatment Plan.

2. Destructive analyses. Minimally-destructive analyses of the human remains shall consist of purified-collagen AMS radiocarbon dating, stable isotope analyses, and preliminary DNA analyses. Every effort shall be made to minimize the amount of material used for these analyses; if possible, all three analytical techniques shall be carried out using the pulp from a single tooth in each sampled individual. The Principal Investigator (PI) shall notify the technical representative of the Contracting Officer of the results of the preliminary testing for preserved DNA, and if it will be necessary to sample additional bone material to complete the three analyses for any one interment. The decisions on additional DNA testing in accordance with the sampling plan described in the Treatment Plan, and on additional sampling of any one interment, shall be made by

the Contracting Officer in consultation with the Principal Investigator (PI) and State HIstoric Preservation Officer (SHPO).

Because some extraction techniques can affect others, a definite sequence of work must be adhered to. Once the individuals to be sampled are determined, the first task shall be extraction of material for DNA testing, in order to minimize the contamination that is of critical concern with this method. Then, additional material shall be extracted for AMS dating and basic carbon and nitrogen isotope analysis. Additional details of isotopic analysis may then follow.

D. TECHNICAL REPORT. The Contractor shall prepare an in-depth technical report on the findings at 41VT98. This report shall integrate the findings and technical reports of subcontracted specialists. The Contractor shall submit ten copies of the draft report to the Authorized Representative of the Contracting Officer (COR). Three hundred copies of a printed, perfectly bound final report shall be submitted to the COR. In addition, the Contractor shall submit one electronic version of the final report (in PDF format and bookmarked to the Table of Contents) on CD-ROM, including all figures, maps, and tables in digital format. Copies of the daily journal, selected digital photographs of the fieldwork and recovered artifacts, "Abstracts in Texas Archeology Summary Form," and inventory of materials to be curated shall be furnished to the COR with submission of the final report.

1. Basic Sections of the Report. The overall report shall include the following sections:
    a. Introductory chapters (i.e., discussion of goals/research issues, methodologies, plus cultural, environmental contexts of 41VT98).
    b. Description of fieldwork, excavated deposits, stratigraphy, features. This shall include sections already prepared and their integration with geoarchaeological findings.
    c. Definition of temporally discrete site components.
    d. Description and discussion of artifacts by material classes and according to identified site components. This shall include tabulated metric and provenience

data, and discussions of functional and stylistic implications of artifacts based on analytical procedures listed above and in the Treatment Plan.

e. Detailed presentation and discussion of the various faunal analysis listed above and in the Treatment Plan.

f. Interpretations of spatial distributions of various non-mortuary material classes to elucidate on-site behavioral patterns.

g. Presentation and discussion of data relevant to broader adaptive patterns (i.e.,patterns of settlement, mobility, exchange, resource extraction, technological organization), with particular emphasis on chronological continuity and change in human ecology. This shall be based upon a synthesis of the artifactual, ecofactual, geoarchaeological and palynological findings.

h. Human osteology. The various lines of analyses listed above and in the Treatment Plan will be described in terms of methods and findings and then directed toward answering, to the extent possible, the major research issues listed above and in the Treatment Plan. A detailed report will present all data in tables along with descriptive and interpretive text and appropriate photographic illustrations.

i. Mortuary material culture. The artifacts found with the site's Early Archaic and Late Archaic mortuary remains will be described in detail and discussed according to the sociocultural implications of associations of form, function, style with individuals according to age, and sex.

j. The Contractor shall synthesize, to the extent possible, the various findings to elucidate the place of the Buckeye Knoll site in the cultural and human-biological/demographic development in the prehistory of the region and North American in general. These broader interpretive discussions will be guided by a cultural-ecological theoretical perspective.

2. Illustrative Materials. The technical report shall be illustrated with black-and-white photographic images, detailed technical drawings, and maps at various scales. Non-mortuary artifacts shall be extensively illustrated using mostly black-and-white photographs (with drawings used occasionally for illustration of special features).

Excavation profiles and features shall be illustrated with a combination of black-and-white photographs and drawings. Human burials shall be illustrated with accurate scale line drawings; mortuary artifacts shall be illustrated with high-accuracy technical drawings. Especially informative/significant attributes of human bone specimens may be illustrated with photographs.

E. NON-TECHNICAL PUBLICATION. The Contractor shall prepare a comprehensive overview of the findings at 41VT98 for the public. This shall consist of a relatively short (~ 100 pp.), well-illustrated monograph written in clear but non-technical style. This monograph will document the long history of human presence in the region as indicated at Buckeye Knoll, from Paleo-indian times and through the Archaic and Late Prehistoric periods. This publication shall be liberally illustrated with maps, photographic reproductions and drawings. Maps shall not show the site at a scale that would reveal its exact location. Photographs of key artifact/tool types shall support discussions of the key aspects of ancient technology, economic and social life evidenced at the site. The unique Archaic cemetery shall be described with supporting drawings of artifacts and schematic mapping. Where possible, the basic findings of the combined bioarchaeological studies and mortuary-artifact analyses shall be the foundation of a discussion of the significance of Buckeye Knoll in the larger context of early North American prehistory. No detailed drawings or photographs of the interments, in the field or in the laboratory, shall be included in this publication.

The Contractor shall submit ten copies of the draft report to the COR. Three hundred copies of a printed, perfectly bound final report shall be submitted to the COR. In addition, the Contractor shall submit one electronic version of the final report (in PDF format and bookmarked to the Table of Contents) on CD-ROM, including all figures, maps, and tables in digital format.

F. PREPARATION OF NON-MORTUARY MATERIALS FOR ACCESSIONING. All non-mortuary materials, epoxy-resin casts, and site investigation/analysis records will be prepared and packaged for accessioning into a curational facility in accordance with CTA standards. Only samples of bulk materials such as burned clay, shell and rock shall be prepared for accessioning. All lithic, ceramic, bone, asphaltum, and shell artifacts/tools shall be prepared for

accessioning. Additionally, all field and laboratory notes, photographs with appropriate logs, and a complete materials inventory shall be prepared for accessioning in accordance with current CTA requirements.

G. LOGISTICAL ARRANGEMENTS

1. Preparation for transport. All osteological human remains shall be packaged for transport to, and from, the bioarchaeology laboratory, Department of Anthropology, Florida State University (FSU), Talahassee. This packaging shall be supervised by Dr. Glen Doran, FSU and shall be in accordance with procedures and materials best suited for secure transport of such materials.

2. Transportation. The Contractor shall transport the human remains to the bioarcheology laboratory in Talahassee, Florida, and return the remains to Texas at the conclusion of analysis. The transportation shall be supervised by Dr. Glen Doran, FSU. The method of transport shall be identified in the Contractor's proposal.

3. Bioarcheology laboratory. The Contractor shall provide a separate, secure laboratory for storing and analyzing the human osteological materials. No other human osteological materials shall be housed in the same laboratory. The laboratory shall be equipped with a security and fire alarm system.

4. Security Plan. The Contractor shall prepare and follow a security plan to ensure that only authorized personnel have access to the human osteological materials. Access shall be restricted to contractor and sub-contractor staff analyzing the materials. Laboratory key-holders shall be identified in the security plan, and a Key Log shall be maintained which documents any transfer and/or loss of keys. Locks shall be changed within 48 hours of discovery of key loss. Access by janitorial and pest control services shall be identified and controlled.

5. Hurricane Evacuation Plan. The Contractor shall prepare Hurricane Evacuation Plans for the laboratory housing the human osteological remains, and the laboratory housing the remainder of the Buckeye Knoll collection. These plans shall identify procedures to protect the human osteological remains, artifacts, computer data and paper records of the Buckeye Knoll project in the event of a hurricane threat.

III. COMPLETION SCHEDULE AND SUBMITTALS

A. SEQUENCE OF WORK: Tasks will be carried out approximately in the following sequence (with locations in parentheses):

1. Human osteological remains shall be prepared for transport, and transported to the osteological laboratory. (FSU)
2. Human osteological analyses (non-destructive) shall begin and proceed for a period of approximately 18 months from date of inception (FSU)
3. Identification of site components at the Corpus Christi laboratory of Coastal Environments, Inc. (CEI-CC)
4. Preparation of technical drawings of mortuary artifacts for inclusion in the technical and non-technical reports and presentations at meetings (CEI-CC). In order to preclude unnecessary risk to these materials, no artifacts shall leave the CEI-CC lab; all illustration work shall be carried out at that facility.
5. Selection of samples of non-mortuary organics for radiocarbon dating of identified components (CEI-CC); send samples to radiocarbon lab (Beta Analytic).
6. Selection of samples of faunal materials for zooarchaeological and seasonality analyses (CEI-CC); delivery of faunal bone to zooarchaeologist (Mississippi).
7. Delivery of flotation samples to ethnobotanist for macrobotanical analysis (CEI-BR).
8. Selection of samples for minimally destructive analyses (to be done by P.I. at FSU subsequent to completion of basic inventorying of remains).
9. Extraction of tooth pulp for DNA testing (location TBA).
10. Extraction of purified collagen for AMS dating of human remains and stable isotope analyses (Stafford Labs, CO).

11. Residue analyses, w. scheduling priority give to mortuary artifacts at (Texas A&M University, College Station (TAMU)).

12. Mortuary artifact analyses (CEI-CC).

13. Various non-mortuary artifact analyses at CEI -CC lab, concurrent with human osteological analyses.

14. Evaluation of results of initial DNA testing by COE and P.I.

15. Additional DNA testing if initial results are positive and promising for addressing stated research issues (location TBA).

16. Production of cast replicas of mortuary artifacts (TAMU).

17. Transportation of human osteological remains and mortuary artifacts back to Texas (FSU)

18. Report writing, editing of various sub-contracted reports (CEI-CC/BR).

19. Submission of draft technical report for review.

20. Preparation of non-technical report. (CEI-CC/BR)

B. SUBMITTALS

1. Progress reports and meetings.

a. Progress reports. The Contractor shall submit progress reports with every invoice, or at a minimum every 3 months, which document on-going activities, new analyses, completed tasks and identify any problem which may affect completion of the study or the completion schedule. These reports shall contain sufficient information to substantiate progress in accomplishing the work and the associated request for partial payment. Emphasis shall be placed on reporting progress with the bioarcheology study and tracking the location of human osteological remains submitted to other laboratories for analysis. Copies of chain of custody documents (see below) shall be appended to the progress report when remains or samples of remains have been submitted elsewhere for analysis. The reports should document the location of all human osteological materials and identify the any change provided to the consulting parties monitoring the progress of this study. DuPont has requested that Galveston District form an advisory panel that would review Galveston District actions to ensure proper and respectful treatment of the

human remains during analysis, and to monitor progress to ensure that the remains are reinterred as soon as possible.

b. Chain of custody documentation. The Contractor shall maintain records identifying the location of all and/or any portion of the human osteological remains released for separate study throughout the project. In preparation for transport to the FSU laboratory, the Contractor shall prepare an inventory of the remains (i.e. the field inventory updated to include box/lot numbers) to be turned over to FSU. Chain of custody documents (format to be provided) shall be prepared and maintained to document all changes in custody. Copies of these chain of custody documents will be provided to the Government with the applicable progress report.

c. Status and Coordination Meetings. The Contracting Officer will require the PI to attend meetings for status updates or to coordinate with the SHPO and interested consulting parties. Every effort will be made to schedule these meetings so that no travel is required. The Contractor shall host a pre-work consultation meeting at the Contractor's laboratory in Corpus Christi, Texas. The CEI PI and the FSU PI shall attend and meet with the technical representative of the Contracting Officer and representatives from DuPont to discuss expectations and procedures regarding treatment of the human osteological remains during analysis. During the bioarcheological analysis phase at a date to be determined later, the Contractor shall host one inspection of the FSU laboratory by consulting parties. The technical representative of the Contracting Officer will coordinate this visit, and accompany the consulting parties to the meeting. The FSU Principal Investigator shall be present during the inspection and facilitate inspection of the remains (if required) and the facilities used to house and analyze them.

C. COMPLETION SCHEDULE. The basic work, draft, and final reports shall be completed in accordance with the following schedule to be calculated from the date of receipt of the delivery order.

Task	Completion Date
Analysis of artifacts, ecofacts, & human osteological remains	1/15/2005
Return of human osteological remains and mortuary artifacts	2/15/2005
Preparation and submission of draft technical report	1/15/2006
Government and peer review of draft technical report	3/30/2006
Incorporate comments & submit final technical report	5/15/2006
Preparation and submittal of draft public report	7/15/2006
Government review of draft public report	8/15/2006
Incorporate comments & submit final public report	9/30/2006

IV. 52.232-5002 CONTINUING CONTRACTS (ALTERNATE) (MAR 1995)—EFARS

A. Funds are not available at the inception of this contract to cover the entire contract price. The sum of $50,000 has been reserved for this contract and is available for payment to the contractor during the current fiscal year. It is expected that Congress will make appropriations for future fiscal years from which additional funds, together with funds provided by one or more non-federal project sponsors will be reserved for this contract. The liability of the United States for payments beyond the funds reserved for this contract is contingent on the reservation of additional funds.

B. Failure to make payments in excess of the amount currently reserved, or that may be reserved from time to time, shall not be considered a breach of this contract, and shall not entitle the contractor to a price adjustment under the terms of this contract except as specifically provided in paragraphs (e) and (h) below.

C. The Government may at any time reserve additional funds for payments under the contract if there are funds available for such purpose. The contracting officer will promptly notify the contractor of any additional funds reserved for the contract by issuing an administrative modification to the contract.

D. If earnings will be such that funds reserved for the contract will be exhausted before the end of any fiscal year, the contractor shall give written notice to the contracting officer of the estimated date of exhaustion and the amount of additional funds which will be needed to meet payments due or to become due under this contract during that fiscal year. This notice shall be given not less the 45 nor more than 60 days prior to the estimated date of exhaustion.

E. No payments will be made after exhaustion of funds except to the extent that additional funds are reserved for the contract. If and when sufficient additional funds are reserved, the contractor shall be entitled to simple interest on any payment that the contracting officer determines was actually earned under the terms of this contract and would have been made except for exhaustion of funds. Interest shall be computed from the time such payment would otherwise have been made until actually or constructively made, and shall be at the rate established by the Secretary of the Treasury pursuant to Public Law 92-41, 85 STAT 97, as in effect on the first day of the delay in such payment.

F. Any suspension, delay, or interruption of work arising from exhaustion or anticipated exhaustion of funds shall not constitute a breach of this contract and shall not entitle the contractor to any price adjustment under a "Suspension of Work" or similar clause or in any other manner under this contract.

G. An equitable adjustment in performance time shall be made for any increase in the time required for performance of any part of the work arising from exhaustion of funds or the reasonable anticipation of exhaustion of funds.

H. If, upon the expiration of sixty (60) days after the beginning of the fiscal year following an exhaustion of funds, the Government has failed to reserve sufficient additional funds to cover payments otherwise due, the contractor, by written notice delivered to the contracting officer at any time before such additional funds are reserved, may elect to treat his right to proceed with the work as having been terminated. Such a termination shall be at no cost to the Government, except that, to the extent that additional funds to make payment therefore are allocated to this contract, it may be treated as a termination for the convenience of the Government.

I. If at any time it becomes apparent that the funds reserved for any fiscal year are in excess of the funds required to meet all payments due or to become due the contractor because of work performed and to be performed under this contract during the fiscal year, the Government reserves the right, after notice to the contractor, to reduce said reservation by the amount of such excess.

J. The term “Reservation” means monies that have been set aside and made available for payments under this contract.